

1 **WHAT IS CLAIMED IS:**

2 1. An ultrasonic detector installable on a truck trailer fitted with a night
3 light, comprising a console unit (10) and at least one ultrasonic detection unit
4 (20); wherein

5 the at least one ultrasonic detection unit (20) emits ultrasonic waves,
6 receives reflected wave signals within a predetermined time, and converts the
7 wave signals to pulse signals; and

8 the console unit (10) collects pulse signals from the at least one ultrasonic
9 detection unit (20), and then generates the distance data to be displayed through
10 a digital display (13) and to determine whether to activate an alarm (12) to warn
11 the driver of a reducing distance between the truck trailer and any object.

12 2. The ultrasonic detector according to claim 1, wherein the at least one
13 ultrasonic detection unit has a controller chip (25), multiple transceivers (21-
14 24), a second RF interface (26), a second cable interface (27), a storage battery
15 (28) and a recharge circuit (29).

16 3. The ultrasonic detector according to claim 1, wherein the cable interface
17 (15) of the console unit (10) and the cable interface (27) of the at least one
18 ultrasonic detection unit (20) are to be interconnected by a cable for
19 bidirectional communication.

20 4. The ultrasonic detector according to claim 1, wherein the RF interface
21 (14) of the console unit (10) and the RF interface (26) of the at least one
22 ultrasonic detection unit (20) are used for establishing radio frequency
23 communication.

24 5. The ultrasonic detector according to claim 1, wherein the console unit

1 (10) has a microprocessor that is connected to an alarm (12), a digital display
2 (13), a first RF interface (14) and a first cable interface (15).

3 6. The ultrasonic detector according to claim 2, wherein the controller chip
4 (25) of the at least one ultrasonic detection unit (20) is connected to the brake
5 light of the vehicle through a special connector (201) to obtain necessary
6 control signals to initiate the operation cycle of the transceivers (21-24).

7 7. The ultrasonic detector according to claim 5, wherein the alarm (12) is a
8 buzzer.

9 8. The ultrasonic detector according to claim 5, wherein the digital display
10 (13) is a seven-segment LED display.

11 9. The ultrasonic detector according to claim 5, wherein the digital display
12 (13) is an LCD display.

13 10. The ultrasonic detector according to claim 5, wherein the recharge
14 circuit (29) of the ultrasonic detection unit (20) is coupled to the night light on
15 the truck trailer through a special connector (201), through which the storage
16 battery (28) gets recharged using electricity from the night light of the truck
17 trailer.

18 11. The ultrasonic detector according to claim 1, wherein each
19 ultrasonic detection unit (20) has the second cable interface (27), the storage
20 battery (28) and the recharge circuit (29) respectively connected to a
21 communication cable, a brake light and night light of the truck trailer through
22 the special connector (201).

23 12. The ultrasonic detector according to claim 6, wherein each
24 ultrasonic detection unit (20) has the second cable interface (27), the storage

- 1 battery (28) and the recharge circuit (29) respectively connected to a
- 2 communication cable, a brake light and night light of the truck trailer through
- 3 the special connector (201).